Application No.: 10/534,441 Response under 37 CFR §1.116 Art Unit: 1796

Attorney Docket No.: 052483

REMARKS

Claims 2-16 and 9-22 are pending. Claim 16 has been amended herein to correct a

clerical error.

Clerical Error

Applicants note that claim 16 refers to "said premix" and should read --said composition-

-. Applicants have amended claim 16 herein to correct this error and thereby provide proper

antecedent basis.

Applicants' Response to the Claim Rejections under 35 U.S.C. §102(b)

Claims 2-4, 7-10, 13-16 and 22 are rejected under 35 U.S.C. §102(b) as being

anticipated by Singh et al. (WO 99/05204).

Applicants respectfully request favorable reconsideration on the basis that Singh does not

teach each and every feature of the claimed invention either expressly or inherently.

(a) The Presented Claims are to a Premix

The present invention pursuant to parent claims 4, 16 and 22 relates to a premix for use in

The premix composition contains a polyol, a curing catalyst, 1,1,1,3,3in-situ foaming.

pentafluoropropane (HFC-245fa), a foaming stabilizer, a vapor pressure reducing agent

represented by formula (1) and having a total acid content of 650 mg KOH or less, etc and further

is required to be free of isocyanate.

- 10 -

Response under 37 CFR §1.116

Art Unit: 1796 Attorney Docket No.: 052483

Application No.: 10/534,441

safety.

As set forth in the specification the composition is stored in the form of a premix composition and transported to a site where polyurethane foam is used (e.g., at a construction site), and foaming is performed at the site by mixing it with isocyanate. The premix composition of the present invention achieves in-situ foaming without difficulty and the obtained polyurethane foam exhibits sufficient flame retardancy. HFC-245fa is added to the premix composition from the beginning. This improves the efficiency in storage, preservation, transportation, and foaming operations, and accordingly reduces costs and enhances operational

As disclosed on page 2, line 20 to page 3, line 4 of the present specification, HFC-245fa has a low boiling point of 15.3°C and a high vapor pressure. Accordingly, particularly in summer, HFC-245fa and premix compositions containing HFC-245fa need to be stored or transported in pressurized drums, and require careful handling. Furthermore, since HFC-245fa has no chlorine atoms, it is less compatible with polyol components as compared with HCFC-141b, which has chlorine atoms. Accordingly, the concentration of HFC-245fa in a premix composition is uneven.

The vapor pressure reducing agent used in the present invention achieves a vapor pressure reduction effect that can solve the above problems. Therefore, HFC-245fa can be added to the premix composition from the beginning as in Examples 1 to 15 of the present application. Because the vapor pressure reducing agent used in the present invention can effectively reduce the vapor pressure of HFC-245fa, a premix composition comprising the vapor pressure reducing

Response under 37 CFR §1.116 Attorney Docket No.: 052483

Application No.: 10/534,441

Art Unit: 1796

agent and HFC-245fa can be handled easily during storage or transportation. See page 15, lines

19 to 24 of the specification.

Furthermore, as disclosed on page 16, line 21 to page 17, line 3; and page 19, lines 4 to 7

of the specification, while HFC-245fa has a low solubility in polyols, the vapor pressure

depressant increases the solubility of HFC-245fa in polyols to give a uniform premix

composition. This allows HFC245fa to be contained in the premix composition from the

beginning.

When the premix composition is stored for a long period of time, and if the vapor

pressure reducing agent transforms into phosphoric acid, etc., by hydrolysis caused by water in

the system, the polyurethane foaming is adversely affected. Therefore, excellent hydrolysis

resistance is required of the vapor pressure reducing agent. Since the vapor pressure reducing

agent used in the present invention has a total acid content of 650 mg KOH or less, hydrolysis is

prevented and smooth foaming is achieved. As disclosed in page 15, line 25 to page 16, line 20

of the specification, the vapor pressure reducing agent used in the present invention is highly

resistant to hydrolysis. Therefore, the premix composition comprising the vapor pressure

reducing agent and HFC-245fa is stable and can be preserved over a long time, and thereby

foaming is not hindered and phase separation or precipitation is prevented. As detailed above,

the present invention allows HFC-245fa to be present in the premix composition from the

beginning.

There is no such disclosure in Singh.

- 12 -

Application No.: 10/534,441 Response under 37 CFR §1.116

Art Unit: 1796 Attorney Docket No.: 052483

(b) Singh does not teach a premix

Singh et al. (WO 99/05204) discloses in Example 1, relied upon by the rejection, that a

polyol blend was made by mixing together all the ingredients listed under "Polyol Side" except

the HFC-245fa (page 19, lines 1 to 3). In other words, HFC-245fa was added in a separate step.

In the Examples of Singh et al., the polyol component was kept at a low temperature and HFC-

245fa was added in a separate step while foaming. Singh et al. does not aim to reduce the vapor

pressure of HFC-245fa so that a premix composition, to which HFC-245fa is added in advance

(i.e., from the beginning), can be stored and preserved. Basically, HFC-245fa and an organic

phosphorous compound (a flame retardant) coexist only when foaming is performed. In this

respect, the invention of Singh et al. is clearly different from the present invention.

Specifically, the section of Singh which the Office Action cites to at page 19 states:

Polyol blend was made by mixing together all the ingredients listed under "Polyol Side" <u>except the HFC-245fa</u> using a high speed mixer at room temperature. The

polyol blend was added to the "Polyol Side" tank of a Edge-Sweets high pressure impingement mix dispense machine. Thereafter, an appropriate amount of HFC-245fa ... was added to the "Polyol Side" tank and mixed vigorously using an airmixer attached to the tank. Isocyanate was added to the "Iso side" tank attached to

the dispense machine. ...

... The foaming ingredients were shot from the dispense machine into a 5-liter

cup...

(emphasis added)

Based on the above, the formation method of the foam for the Examples of Singh does

not allow for the HFC-245fa to be added to the pre-mixture until the foam is ready for formation.

Hence, Singh does not teach mixing HFC-245fa with a vapor pressure reducing agent of

- 13 -

Application No.: 10/534,441 Response under 37 CFR §1.116
Art Unit: 1796 Attorney Docket No.: 052483

rttome, 1770

applicants' formula 1 in a transportable pre-mixture for in-situ foaming. Rather, HFC-245fa is

added immediately prior to the polyol mixture (which in Singh contains the flame retardant

equivalent of the vapor reducing agent) in an agitated state immediately before foaming.

Applicants' Response to the Claim Rejections under 35 U.S.C. §103

Claims 5, 6, 11-12 and 19-21 are rejected under 35 U.S.C. §103(a) as being

unpatentable over Singh et al. (WO 99/05204) as applied to their respective parent claims 4,

10 and 16 detailed above, and further in view of Wicks (U.S. 5,977,196).

Applicants respectfully submit that by addressing the rejection to the parent claims as

detailed above, likewise the rejection of claims 5, 6, 11-12 and 19-21 should be considered

addressed by nature of their dependency.

In view of the aforementioned amendments and accompanying remarks, Applicants

submit that the claims, as herein amended, are in condition for allowance. Applicants request

such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the

Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to

expedite the disposition of this case.

- 14 -

Response under 37 CFR §1.116 Application No.: 10/534,441 Attorney Docket No.: 052483

Art Unit: 1796

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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